

Oggetto: attribuzione parti ai coautori

Con la presente i sottoscritti Francesca De Canio e Davide Pellegrini dichiarano che l'articolo negli Atti del Convegno Internazionale:

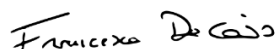
De Canio F., & Pellegrini D. (2015). Factors affecting smartphone shopping. Proceedings of the *3rd International Conference on Contemporary Marketing Issues*, 2015 con ISSN: 2412-7337, è frutto del lavoro di ricerca congiunto dei due autori.

Tuttavia, in fase di stesura finale, il lavoro è da attribuirsi a Francesca De Canio per i paragrafi 2,3 e 4, a Davide Pellegrini per il paragrafo 1.

Parma, 23 luglio 2015

In fede,

Francesca De Canio



Davide Pellegrini





ICCM LONDON 2015

**3rd International Conference on
Contemporary Marketing Issues**

30 June - 2 July 2015

Conference Proceedings

Hosted by Kingston Business School

Jointly organised by Alexander Technological Educational Institute of Thessaloniki (ATEI)
and Kingston Business School, Kingston University, London



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Welcome to the 3rd International Conference on Contemporary Marketing Issues 30 June – 2 July 2015

Jointly organised by the Alexander Technological Educational Institute (ATEI) and Kingston University

Welcome to the 3rd International Conference on Contemporary Marketing Issues (ICCMI), hosted by Kingston Business School, Kingston University, London. This is the first time that ICCMI is held outside Greece and demonstrates the determination of the organising committee to develop the conference as a truly international forum for the exchange of marketing ideas.

We are privileged to have the participation of two distinguished keynote speakers, both pre-eminent within their professions. Clive Humby gives the opening keynote address “Understanding Customers: From Social Class to Social Media” on Tuesday morning, and Michael Baker delivers the closing address “Marketing for the Social Good” on Thursday afternoon.

We are pleased to announce additional programme plenary sessions that put the spotlight on contemporary marketing from the perspective of the practitioner. On Wednesday morning Jon Puleston will offer insights into “Using Gamification in Market Research” while Peter Mouncey will present ideas about “Marketing Value Metrics” on Thursday morning.

There are 87 competitive papers that represent a range of contemporary marketing topics by authors from over 30 countries. A number of prestigious journals offer publication opportunities to the outstanding papers submitted to ICCMI2015. We are confident that participants will find the sessions engaging and intellectually stimulating, offering many opportunities for lively and motivational discussions leading to new and innovative ways of meeting contemporary marketing challenges in an increasingly turbulent economic and business environment.

Acknowledgements

We express our sincere thanks to those who contributed to the successful outcome of the third ICCMI. First we thank the authors who submitted diverse and very interesting papers. We also extend our thanks to the members of the Advisory Board and Scientific Committee, the reviewers and track chairs who volunteered their time and effort for the success of this conference. A special thank you is extended to the Co-chairs, Costas Assimakopoulos of ATEI Greece and Patricia Harris, Lesley Ledden and Helen Robinson of Kingston Business School, Kingston University whose cooperation, assistance, commitment and dedication made this conference possible.

We also thank the two universities, the Alexander Technological Educational Institute and Kingston University for their invaluable support. On behalf of the Chairs and Co-chairs we warmly welcome you to London and hope that you will enjoy ICCMI2015 both professionally and socially.

Christos Sarmaniotis
Professor
Alexander TEI of Thessaloniki
Conference Chair

Stavros P Kalafatis
Professor
Kingston Business School, Kingston University
Conference Chair

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Factors affecting smartphone shopping

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Abstract

In recent years, the telecommunication sector has seen its market-leaders change. Today, the market is headed by 11 manufacturers, even though two main companies hold 42% of the market-share (Samsung and Apple). Furthermore, hundreds of models incorporating new functionalities are launched every year. This research is one of the first attempts to investigate functional evaluation in shopping smartphones and to predict future context of this turbulent market.

With the use of 264 surveys of real smartphone owners and users, collected online in the first fortnight of May 2015, and the use of Conjoint Analysis (CA), we highlight major attributes consumers take into consideration in buying smartphones. Results show that consumers who decide to buy a smartphone consider Price, Camera performance, Battery-life and Brand. De facto, we find that, in smartphone shopping, consumers brand awareness is less important than technical characteristics. Notwithstanding, running the CA on subgroups defined by the brand of the smartphone owned, we find different attributes' relative importance. Results show that Apple owners have a stronger brand awareness than Samsung owners. Implications aim to help manufacturers in developing smartphone features rationalizing invested resources, interpreting preferences of customers and reinforcing competitive advantages.

Keywords: smartphone, attributes, factors, conjoint analysis, brand awareness, price, technical characteristics.

1. INTRODUCTION and literature background

Until few years ago, the smartphone was considered as an experience good (Yoo, Yoon and Choi, 2010) and because of its high price, few people owned one. Like for any other technology and innovation (Rogers, 1995), in its early stage most consumers hesitate to purchase smartphones. Nevertheless, today we can consider the smartphone as a disruptive innovation, because in less than five years it has reached the majority of consumers and the newest products, nowadays, are considered as commodities. Today, the smartphone “is becoming an essential IT gadget to the working executives. The smartphone offers flexibility to the executive to be mobile and ability of wireless data and voice communication with their clients at anytime, anywhere they are” (Bojei and Hoo, 2012, p.38).

The spread of smartphone, worldwide, has totally reshaped not only society and ways in which consumers communicate each other, but also the telecommunications market. In just a few years, smartphone manufacturers have replaced manufacturers of mobile-devices. Today, 11 main producers head the market of smartphones, with Samsung and Apple, which together account for almost 42% of market-share. Each manufacturer manages a unique brand and produces different products with various specifications. In the first quarter of 2015, approximately 345 million smartphones were sold worldwide (Table1).

Table 3: Global smartphone vendor shipments (Million of units)

	Q1 '14	Q2 '14	Q3 '14	Q4 '14	Q1 '15
Samsung	89.0	74.5	79.2	74.5	83.2
Apple	43.7	35.2	39.3	74.5	61.2
Lenovo - Motorola	19.7	23.8	24.5	24.7	18.8
Huawei	13.4	20.1	16.5	24.1	17.3
Others	119.2	141.4	163.9	182.3	164.5
Total Market	285.0	295.0	323.4	380.1	345.0

Source: IDC Smartphone Market-Share 2015

However, despite a growth trend in sales in the last 5 years, according to StrategyAnalytics.com, on a quarter over quarter basis, the market contracted 8% on the back of a large inventory build-up at the end of last year. Considering the trend towards the maturity of the market (Kang, Cho, Lee, 2011), the hyper-competition of the sector, and the heterogeneity of consumers (Voeth, Herbst and Liess, 2012; Gilmore and Pine, 1997; Dellaert and Stremersch, 2005), the assumption proposed by Pine, Peppers and Rogers (1995, p.103) become primary: “consumers want exactly what they want”. In fact, in the smartphone market, it becomes extremely easy for consumers to meet the best option that satisfy their wants, switching from a brand to another to get more functional and performing products. Thus is paramount for scholars and managers in understanding what makes consumers buy a smartphone. Most of the studies on smartphones, are related to the adoption and use of smartphone technology such as: adoption and acceptance, functionality and performance, software and security, networking and connectivity (Aldhaban, 2012). The holistic approach to the adoption of smartphone as whole product has not been explored enough (Aldhaban, 2012; Kang, Cho and Lee, 2011). According to Karjaluoto et al. (2005, p.63) “the acquisition of a new mobile phone [...] is also affected by symbolic values related to brands”. Many authors stated that in presence of choice overload, consumers are more likely to make the choice based on limited information (Lugli, 2012; Karjaluoto et al., 2005; Moorthy, Ratchford and Talukdar, 1997). According to Mohd Suki, consumers, and in particular students, are not influenced by smartphone price because owning and using a smartphone enhances their image; for this reason recognized, branded and trustworthy smartphones are preferred (2013). In line with Mohd Suki, also Faryabi, Fesaghandis and Saed found that “a well-known brand has better quality in comparison to a product associated with an un-known or less-known brand” (2015, p. 174). Thus, scholars agree that brand awareness is the main predictor of smartphone shopping. But, in cases where consumers have past experience, and when quality differences exist among competing brands, consumers “may “pay a price” for employing simple choice heuristics such as brand awareness in the interest of economizing time and effort” (Hoyer and Brown, 1990, p.141). Karjaluoto et al., studied reasons to change mobile phone among students, and found that “price, brand, interface and properties were the most influential factors affecting choice between brands” (2005, p. 60). Rahmati et al. found that “system designers should continue to work [...] provide users with more options regarding the trade-off between battery capacity

and device bulk” (2012, p.20). In a study of 2013, Lay-Lee, Kok-Siew and Yin-Fah show that “smartphone users will consider product feature at first”, convenience secondly and brand thirdly (p.2437).

So, what are the main features that consumers consider when buy a smartphone? Is the brand stronger than technical characteristics? Is price irrelevant on the decision to buy a smartphone? What is the relative importance of the technical characteristics such as the battery life and the camera?

We are in an era in which consumers switch from a brand to another to get more functional and performing products. If consumers are more careful on technical functions of mobile-devices, and in particular on price, in the long run, will marketing investments in brand awareness lose their effectiveness? In the smartphone market, we face leading brands that base their competitive advantages and success on the concept of consumer’s brand awareness and consumers self-identity. This is for example the case of Apple that has been working in creating a brand concept with a strong brand awareness. Apple buyers still retain the strongest brand awareness, but this stop being the driving force of purchasing Apple’s products to keep market share? Vice versa, is the brand awareness an accessory to a much more complex product?

In our pre-test conducted on 75 college students at the beginning of April 2015, we found that the main positive and negative recalls connected to the smartphone shopping are technical factors (i.e. battery-life, price, camera, memory).

Through an applied analysis into the branded product portfolio we aim to help manufacturers to understand if it is better to invest in R&D in developing technologically advanced products or in communication and advertising to reinforce the brand awareness.

Our investigation of real smartphone owners and users, focuses on the analysis of how different sets of endogenous variables such as Brand, Price, Battery-life and Camera influence future shopping decision. Using a conjoint analysis (CA), we identify the relative importance of the 4 factors (called attributes in CA). Finally, we focus on smartphones’ ownership of the two leading brands (Samsung and Apple) and we show differences in relative importance of the four attributes between branded owners.

2. THE EMPIRICAL STUDY AND RESULTS

Data was gathered via an online survey website and launched through Facebook. The post was shared on Facebook during a period of two weeks, in the first fortnight of May 2015. A total of 277 successful questionnaires were collected. As the research design was calibrated on the local market, 9 answers were excluded because completed by non-Italian consumers. 4 answers were excluded because they were completed by non-owners of smartphones. A total of 264 answers were used for the analysis. The final sample of this study includes exclusively real smartphone owners and users in Italy.

The profile of the sample is summarized as follows: male are 75.8%, and female are 24.2%. The average age of the interviewees is 33 year old, from a minimum of 15 years old to a maximum of 71 years old. Almost 55% of the respondents has a secondary level of education and 15.2% possesses a bachelor degree. Graduates accounted for 17% of the respondents, while only 2.3% have a post-graduate degree. Other categories are residual. 50.4% possesses an iPhone, 34.8% owns a smartphone branded Samsung and 14.8% has a smartphone of other brands (e.g. Sony, LG, Nokia, Huawei).

Survey results and the conjoint analysis were analysed using SPSS 21.0.

2.1 Conjoint Analysis and Research Design

To analyse the relative importance of the utility for each functional attribute that the Smartphone contains, we use conjoint analysis. Conjoint Analysis (CA) is a technique typically suited to studying customers' choice processes and determining trade-offs (Hauser and Rao, 2004).

CA pinpoints the preference of each alternative in terms of path utilities expressed in individual attributes. In fact, when consumers choose a model instead of another, they show their preference for an attribute. Each attribute has several sub-levels. In conjoint analysis, the path-worth utilities of individual attributes are calculated based on the selection or ranking of a defined set of combinations of attributes values. In our case, we identified 4 attributes with a maximum of 3 sub-levels each (Figure 1). No prior assumption is made about the relationship between the levels and the data.

Table 2: Variable smartphone attributes

ATTRIBUTES	LEVELS		
	1	2	3
Brand	Apple	Samsung	
Camera	5 Mpx	8 Mpx	16 Mpx
Battery life (stand-by)	< 300 h	3000–450h	> 450 h
Price	149-199€	359-679€	949-999€

As Carmone and Green (1981) found it is difficult for customers to rank more than a dozen profiles, hence, we decide to design the survey with a maximum of 14 models to rank. According to Levy (1995) the engagement of respondents required a more realistic judgement stance and CA predicts better the overall consumer preference through aggregating the utility scores of all individual product attributes. For this reason, we identified the main smartphone sold on the Italian market and we choose 3 main iPhones and 4 main Samsung smartphones. We proposed the main technical characteristics of the 7 identified products with the two brands. Thus, for example, we proposed the main characteristics of iPhone 5 in the model 2 branded Apple and in the model 8 branded Samsung (Figure2). We asked respondents to evaluate alternatives consisting of different combinations of attributes by ranking all proposed combinations from 1st for the most preferred to 14th for the least preferred model. *“Order, the following models of smartphone from that you definitely would buy (position 1), to that you do not would buy (position 14)”*. Interviewees were asked whether they own a smartphone or not.

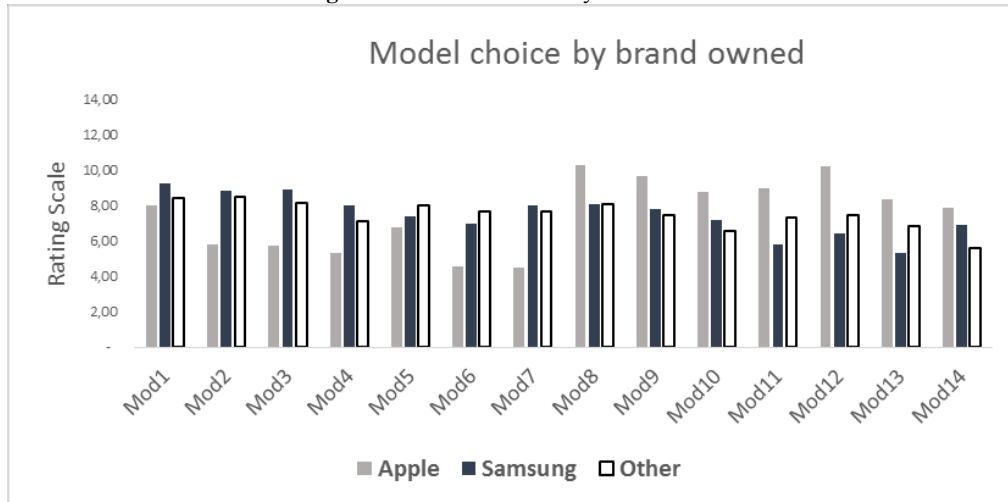
Table 3: Models and technical characteristics proposed in the survey

Model	Brand	Camera (Mpx)	Battery-life (h stand-by)	Price (€)	Model for sale
1	Apple	5 Mpx	300 – 450 h	149 – 199 €	I-Phone 4
2	Apple	8 Mpx	< 300 h	359 – 679 €	I-Phone 5
3	Apple	8 Mpx	300 - 450 h	949 – 999 €	I-Phone 6 plus
4	Apple	8 Mpx	> 450 h	149 – 199 €	Samsung S3
5	Apple	8 Mpx	< 300 h	149 – 199 €	Samsung S4 Mini
6	Apple	16 Mpx	300 – 450 h	359 – 679 €	Samsung S5
7	Apple	16 Mpx	300 – 450 h	949 – 999 €	Samsung S6
8	Samsung	5 Mpx	300 – 450 h	149 – 199 €	I-Phone 4
9	Samsung	8 Mpx	< 300 h	359 – 679 €	I-Phone 5
10	Samsung	8 Mpx	300 - 450 h	949 – 999 €	I-Phone 6 plus
11	Samsung	8 Mpx	> 450 h	149 – 199 €	Samsung S3
12	Samsung	8 Mpx	< 300 h	149 – 199 €	Samsung S4 Mini
13	Samsung	16 Mpx	300 – 450 h	359 – 679 €	Samsung S5
14	Samsung	16 Mpx	300 – 450 h	949 – 999 €	Samsung S6

3. RESULTS

The main goal of this research is to verify if the consumers' brand awareness is the main predictor of smartphone shopping. As shown by the analysis of the average rating of the 14 models, owners of the iPhone prefer Apple-branded smartphones to Samsung. Similarly, Samsung owners prefer, basically, Samsung models instead of Apple. The average rating for each of the 14 proposed models given by those who own a smartphone from other brands is much more homogeneous (Figure 1).

Figure 1: Choice of model by brand owned



In our case, all the attributes are calculated based on the selection of rank of the defined set of combination of attribute values. To discern utility values among different customer groups identified for the brand of their mobile device, we compute the CA three times. In the first case we analysed all the respondents (n=264), in the second case we analysed a sub-group based on Apple owners (n=133) and the third analysis focused on the sub-group of Samsung owners (n=92).

Results of the Conjoint Analysis (Figure 2) show that the main attribute that consumers take in consideration in their shopping evaluation is price, with a relative importance of 29.76. In particular, premium price has a negative impact on shopping decision. The second attribute is camera, and the better the performance of the camera, the better is the consumer's evaluation. The battery-life (25.30) is the third attribute in smartphones' shopping evaluation, with a positive effect for the best performance in terms of battery's hours-life in stand-by. Contrary to the expectation, the brand has the lower relative importance (18.32) and, in particular, smartphones branded Samsung are less willing to be bought.

Figure 2: Estimated path-worth values for smartphone

All Owners (N=264)				Apple Owner (N=133)			Samsung Owner (N=92)			
Attribute	Level	Path-worth Value	Std. Error	Relative Importance (%)	Path-worth Value	Std. Error	Relative Importance (%)	Path-worth Value	Std. Error	Relative Importance (%)
	N	264			133			92		
	Constant	7.182	0.172		7.694	0.323		6.303	0.263	
Brand				18.319			20.835			14.282
	Apple	0.539	0.054		1.686	0.102		-	0.702	0.083
	Samsung	- 0.539	0.054		- 1.686	- 0.102		-	0.702	0.083
Camera				26.625			25.621			29.225
	5 Mpxl	- 1.406	0.202		- 0.919	0.380		-	2.440	0.309
	8 Mpxl	0.280	0.165		- 0.084	0.310			0.940	0.252
	16 Mpxl	1.126	0.117		1.003	0.219			1.500	0.178
Battery (Stan-by h)				25.295			25.339			25.075
	<300 h	- 0.465	0.117		- 0.500	0.219		-	0.533	0.178
	300-450 h	0.184	0.202		- 0.335	0.380		-	1.071	0.309
	>450 h	0.281	0.165		0.835	0.310		-	0.538	0.252
Price				29.761			28.205			31.418
	149-199 €	0.174	0.151		- 0.607	0.283			1.382	0.230
	359-679 €	0.030	0.095		0.168	0.179		-	0.031	0.146
	949-999 €	- 0.205	0.151		0.439	0.283		-	1.351	0.230
Person's R				0.990			0.992			0.983
Kendall's Tau				0.934			0.956			0.912

2.1 Apple vs Samsung Owners

If we compare results from the two subgroups identified by the brand of the smartphone owned, we find some differences. Even if the order of the attributes is the same of the total sample, the relative importance of each is very different. The price is still the most important attribute for both groups, but it reaches the best relative importance with Samsung owners (31.42) that are more conscious of costs. In particular, Samsung owners prefer the lowest price range, while Apple owners prefer the highest. Both groups prefer cameras with high performance. Apple owners evaluate positively higher battery performance, while Samsung owners give the positive rating to the average level of the battery life. Finally, the brand appears to be the most critical variable taken in consideration in our research design. In fact, the difference between the relative importance of the two groups is the highest (6.55). As we expected, Apple owners give a higher score to Apple smartphones, while Samsung owners give the higher score to Samsung smartphones. Nevertheless, the path-worth value of Apple is double that of Samsung, confirming the higher level of brand awareness in the former group.

4. IMPLICATIONS AND LIMITATIONS

Trends in the smartphone market have shown that the sector is strongly affected by changes in innovation and technology adoption. In only a few years, the market-share has been reshaped due to companies' inability to react to consumers request for more innovative and high-performance products. Indeed, the maturity of the smartphone market leads consumers to evaluate not only emotional aspects (brand) of the product they purchase, but also functional features (i.e. camera, battery, price). This study shows that smartphones owners and users consider functional characteristics first. In particular, results obtained by CA show that the main factor influencing consumer shopping behavior is price, indicating that smartphone owners and users buy smartphone on the basis of cost. However, we found that Apple owners are willing to pay a premium price for their i-Phones. Camera image quality and a longer battery life are the second and third factors consumers take in consideration in shopping smartphones, confirming consumers' consciousness of technical features of technological products. Brand seems to be the less important factor taken in consideration by consumers in their shopping process, even though Apple owners still prefer Apple in their future purchase, while Samsung will regain Samsung smartphones. Given these results, manufacturers should reduce their investments in communication and brand awareness by enhancing investments in R&D and innovation to improve battery-life and image resolution of the camera, and all related technical features that make their product pioneering.

The case of smartphones proves interesting insights in the horizontal comparison between brands. Thus, for example the direct comparison of the relative importance given by direct owners of the two brands to the factors connected to the i-Phone 6 plus and the Galaxy S6 shows that the path-worth value of the former is higher (9.40) than the latter (8.23). However, the high-value recognized to the Apple brand by its owners (1.69) is not sufficient to compensate the perceived value recognized by Samsung owners to advances in product features: camera (1.50) and battery (1.07). In fact, the result of inferiority of Samsung is due to the negative impact of the premium price of the Galaxy S6 (-1.35). A Samsung aggressive price competition could lead market-share to change again.

In spite of these contributions, however, this paper has several limitations and future research is needed. First, it is impossible to verify whether the brand choice, and the related value, is based on ownership or, vice versa, if the initial brand awareness influences brand self-identity. In fact, in our study we have just 4 respondents who do not own a smartphone, and all other answers are influenced by previous experiences. Due to the low number

of non-owners, we have excluded them from the analysis and we are unable to express any opinion on their shopping preference (Louviere, Flynn, and Carson, 2010). As noted by Bojei and Hoo (2012) more studies are needed to investigate whether brand awareness affects consumer current use and repurchase intention. However, in general, we find that, even if the brand is the less influential attribute in the most desired smartphone, owners of Apple and Samsung show a real preference in buying a smartphone with the same brand as the one they already own; there is brand loyalty evidence. Second, our analysis was developed online, so respondents are technologically aware. Consumer technology usage could represent a bias in the attribution of weight of functions. In fact, if smartphones are now considered as commodities, it is also true that many people do not buy mobile-devices because they find them too complex to use. Third, although it was based on an online survey, data collection was limited to Italians, and, for data on the Italian market versus the Chinese or American market we have different rates of smartphone market-share. In future, it would be interesting to study differences between Italians and foreign consumers, to evaluate differences in relative importance of functional attributes. Indeed, as shown by data on market-share of smartphones there are big differences between markets. Finally, the sample size of the Samsung's owner is lower than 100, although Akaah and Korgaonkar (1988) find sample sizes below 100 are typical for CA.

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